

What is claimed is :

1. An optical system including a cavity which comprises a semiconductor light-emitting device, and an optical fiber having a first terminal optically coupled to said semiconductor light-emitting device, said  
5 cavity having a cavity length defined between a first facet of said semiconductor light-emitting device and a second terminal of said optical fiber,

wherein a length of said optical fiber is such that a mode-locking  
10 oscillation frequency is not more than 1GHz.

2. The optical system as claimed in claim 1, wherein said optical system comprises a single module, provided that said semiconductor light-emitting device and said optical fiber are accommodated in a single case  
15 having a size smaller than said length of said optical fiber.

3. The optical system as claimed in claim 2, wherein said single case further accommodates a temperature controller for controlling a temperature in said single case.

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4. The optical system as claimed in claim 1, wherein said optical system comprises separate first and second modules which are connectable to each other through at least one connector, provided that said semiconductor light-emitting device is accommodated in said first case and

said optical fiber is accommodated in said second case having a size smaller than said length of said optical fiber.

5. The optical system as claimed in claim 4, wherein each of said  
5 first and second cases further accommodates a temperature controller for controlling a temperature in each of said first and second cases.

6. An optical system including a ring-cavity which comprises a  
semiconductor light-emitting device, and a looped optical fiber having first  
10 and second terminals optically coupled to said semiconductor light-emitting device, said ring-cavity having a cavity length defined by a length of said looped optical fiber and an optical path length between said first and second terminals,

wherein a length of said looped optical fiber is such that a mode-  
15 locking oscillation frequency is not more than 1GHz.

7. The optical system as claimed in claim 6, wherein said optical  
system comprises a single module, provided that said semiconductor light-emitting device and said optical fiber are accommodated in a single case  
20 having a size smaller than said length of said looped optical fiber.

8. The optical system as claimed in claim 7, wherein said single  
case further accommodates a temperature controller for controlling a  
temperature in said single case.

9. The optical system as claimed in claim 6, wherein said optical system comprises separate first and second modules which are connectable to each other through at least one connector, provided that said semiconductor light-emitting device is accommodated in said first case and said looped optical fiber is accommodated in said second case having a size smaller than said length of said looped optical fiber.

10. The optical system as claimed in claim 9, wherein each of said first and second cases further accommodates a temperature controller for controlling a temperature in each of said first and second cases.

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